

Life Sciences knowledge platform enabling data-driven decisions

Berenice Wulbrecht

The Knowledge Graph Conference 2022
HealthCare and Life Sciences Symposium



ONTOFORCE

Which targets have association evidence for arthritis rheumatoid ?

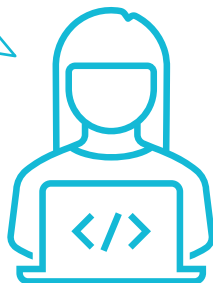
I would like to get sequencing data for all patients onboarded on oncology trials with cardiovascular adverse events.

Which clinical studies have CT lung data and EGFR expression data?

Which clinical sites were involved in studies recruiting patient population young adult NSCLC ?

Is there bioassay data (internal or public) for CDK4 target?

Is there cell lines available, model with JAK2 V617F mutation and for myeloproliferative diseases



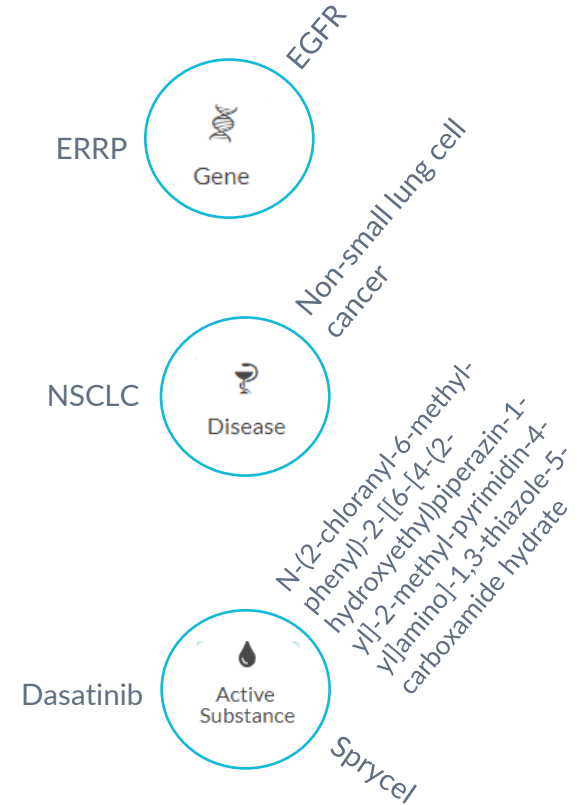
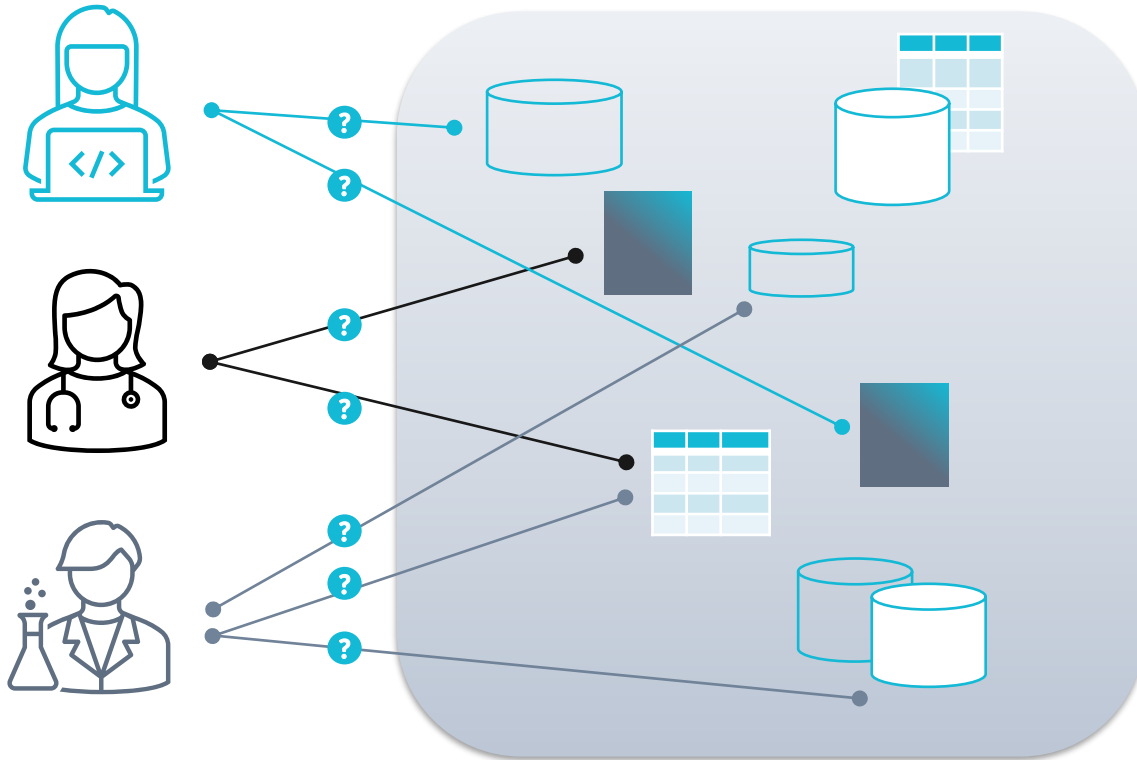
Researchers are spending on average one day per week searching and gathering information.

Data scientists spend around 80% of their time on preparing and managing data for analysis.



Insights for Life Sciences

Data are **siloes** and **not** harmonized



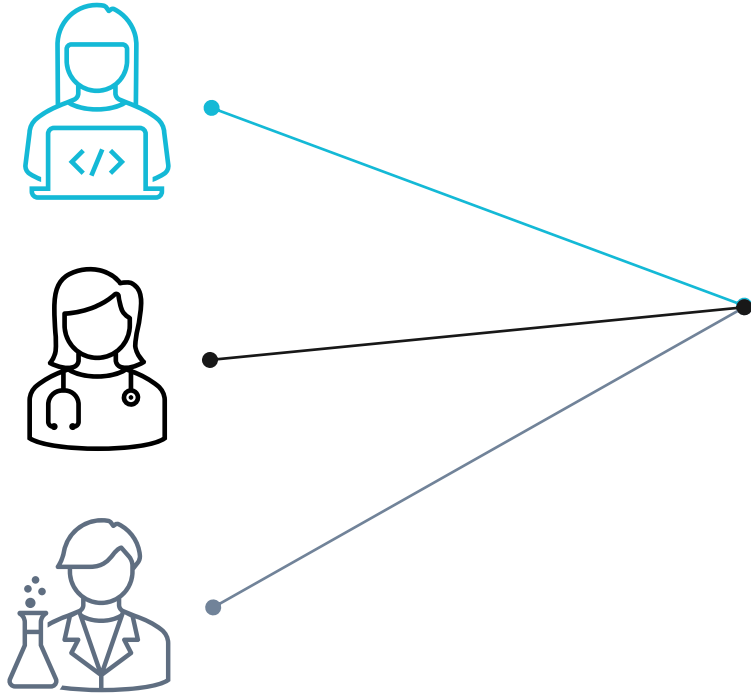
Knowledge Graph are excellent to support reasoning.

Flexible

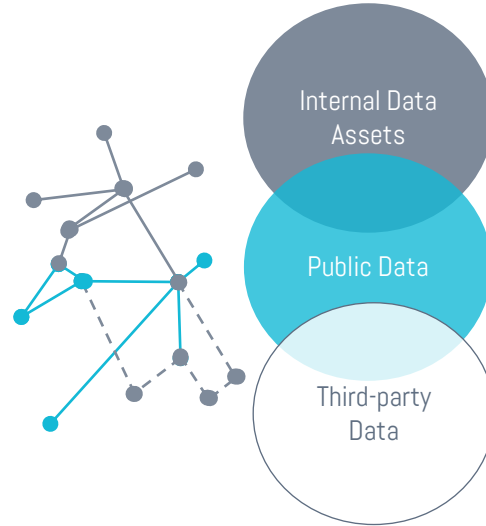
Users and advanced analytics, AI



Insights for Life Sciences




DISCOVER

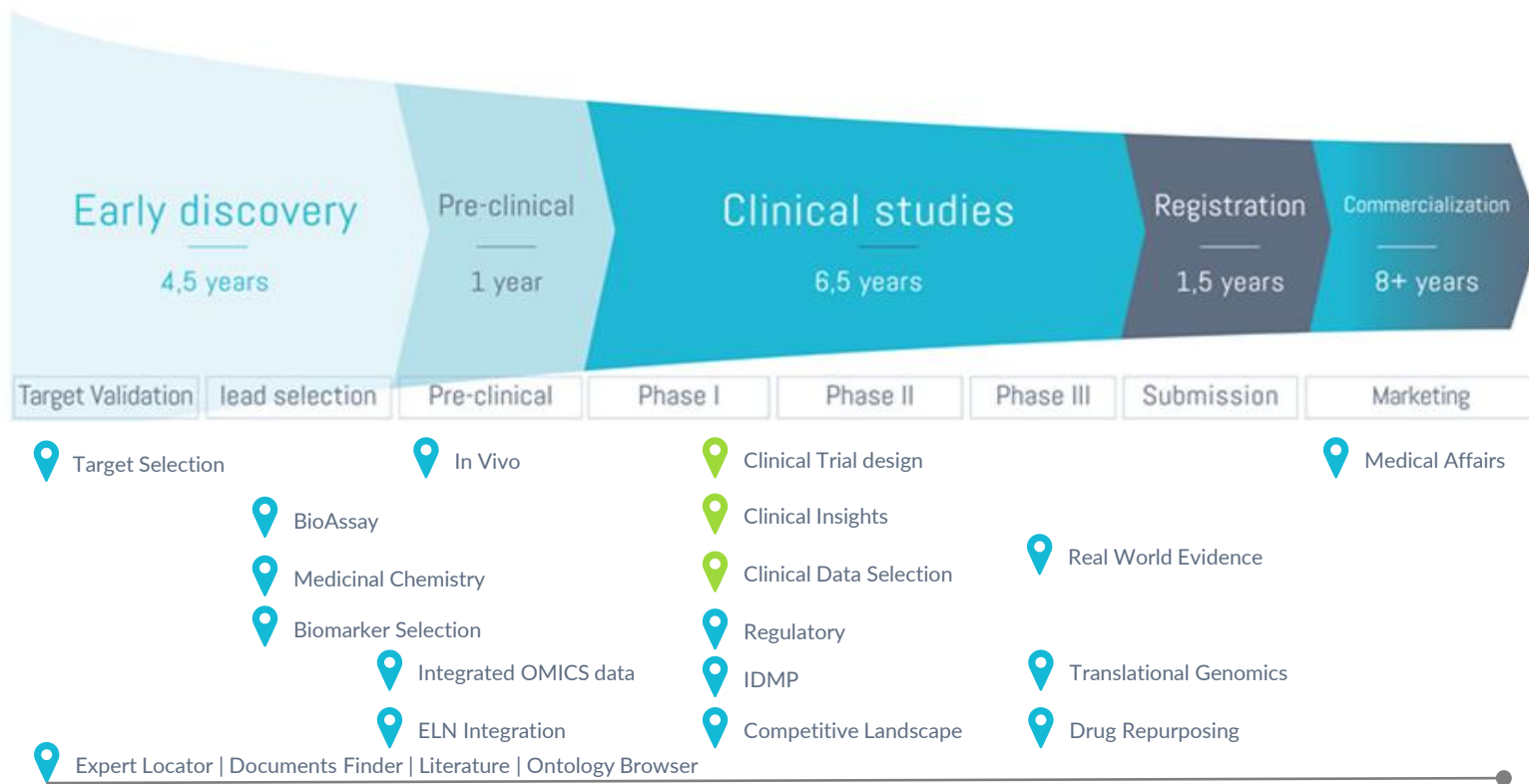


**Integrated and Harmonized
Knowledge Graph**

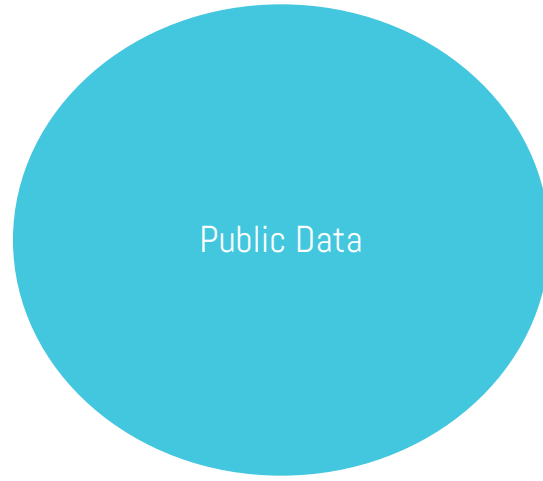
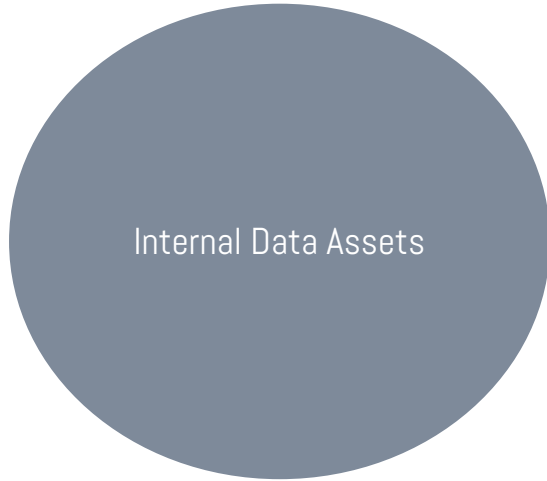
Example of Knowledge Graphs applications



Example of Knowledge Graphs applications



Integration of Clinical Trial Information



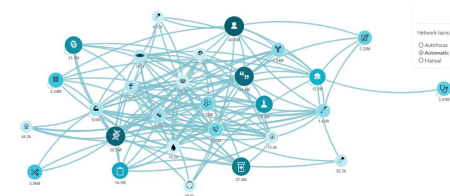
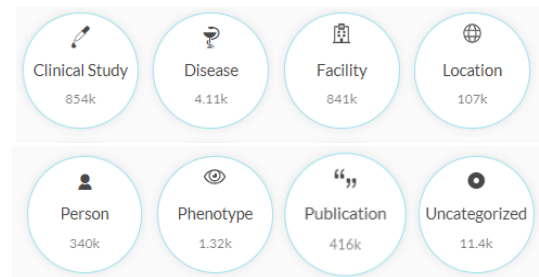
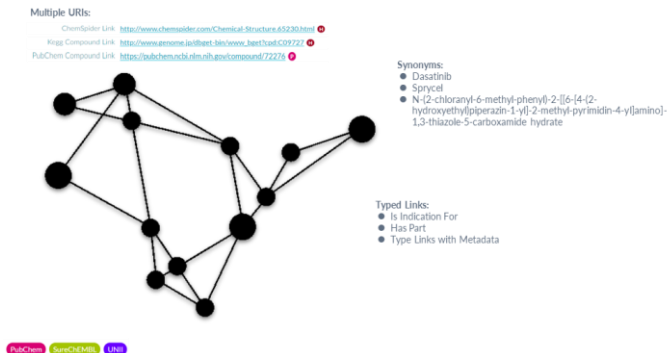
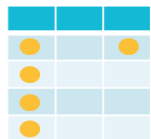
CTMSs
Clinical Trial
Management System



...

Licensed Data

Integration of Clinical Trial Information



1

Transformed Data to individual Knowledge Graph

2

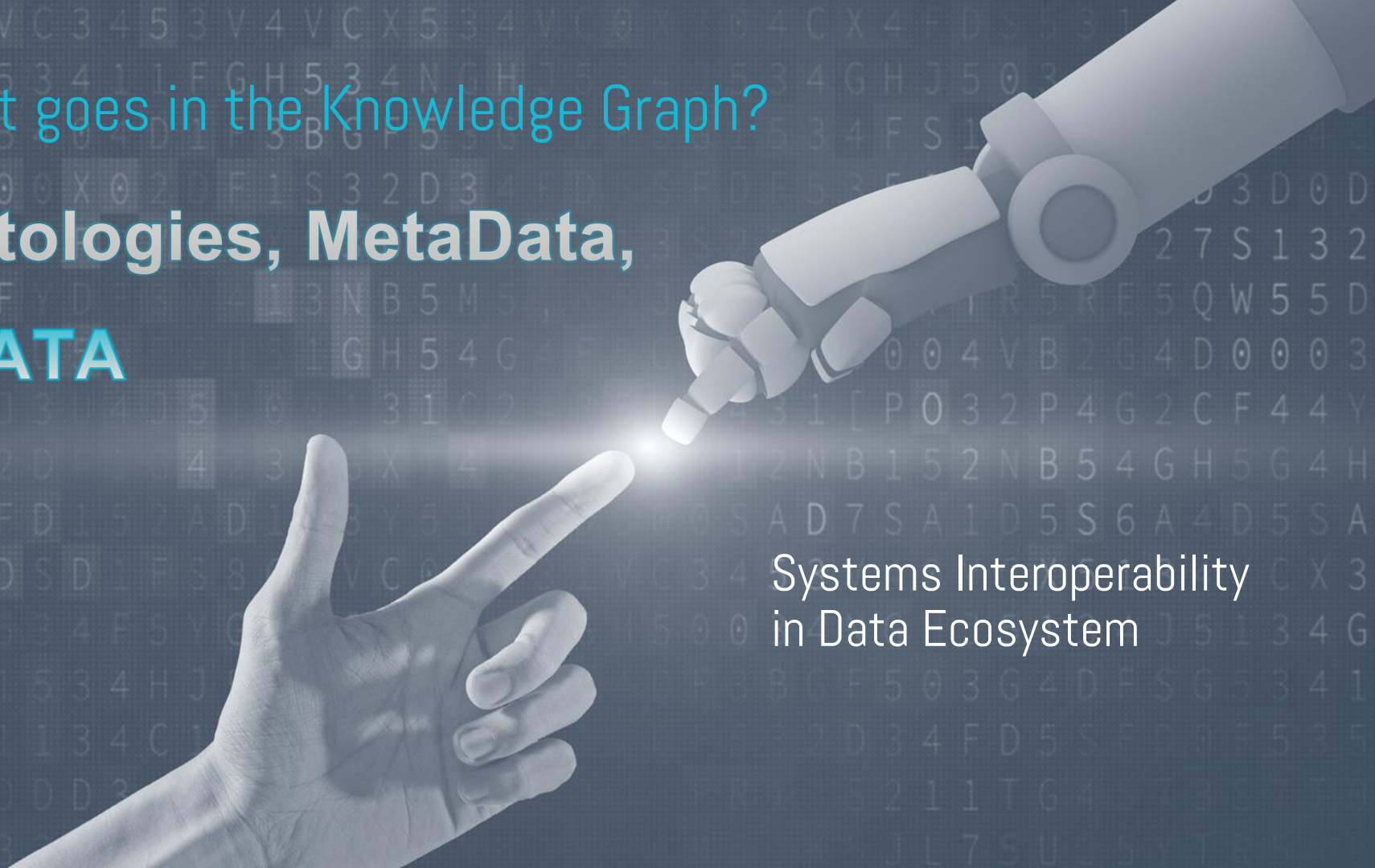
Integrate / Infer uris overlap
synonym matching
context

3

Project the knowledge graph to ontological concepts

What goes in the Knowledge Graph?

**Ontologies, MetaData,
DATA**



Systems Interoperability
in Data Ecosystem

FAIR Journey

F 

Findable

A 

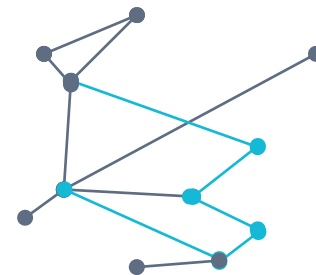
Accessible

I 

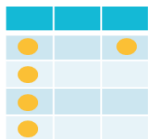
Interoperable

R 

Reusable



Integration of Clinical Trial Information



Multiple URIs:

- ChEMSpider Link <http://www.chemspider.com/Chemical-Structures/65230.html>
- KEGG Compound Link <http://www.genome.jp/kegg/chem/entry/C09727.html>
- PubChem Compound Link <https://pubchem.ncbi.nlm.nih.gov/compound/72276>

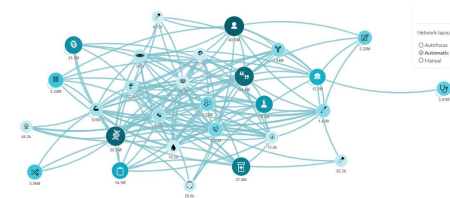
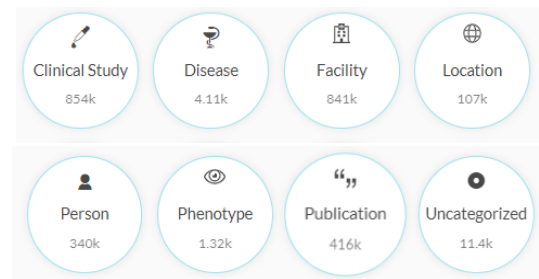
Synonyms:

- Dasatinib
- Sprycel
- N-[2-chloranyl-6-methyl-phenyl]-2-[[6-[4-(2-hydroxyethyl)piperazin-1-yl]-2-methyl-pyrimidin-4-yl]amino]-1,3-thiazole-5-carboxamide hydrate

Typed Links:

- Is Indication For
- Has Part
- Type Links with Metadata

PubChem | ChEMSPIDER | URI



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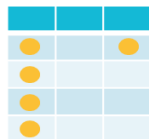
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Data Standards

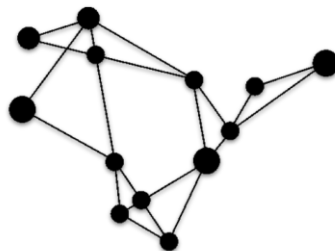


Integration of Clinical Trial Information



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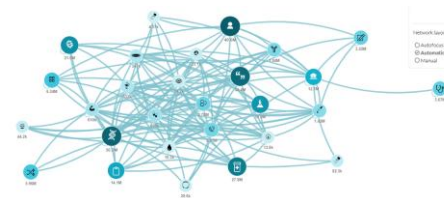
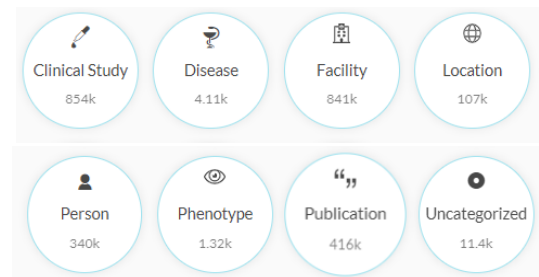
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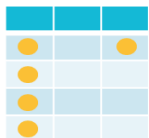
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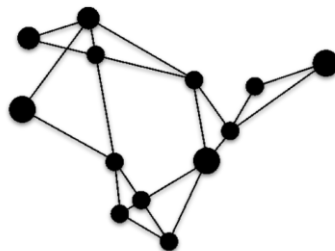


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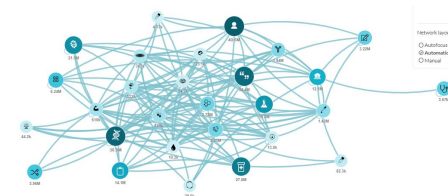
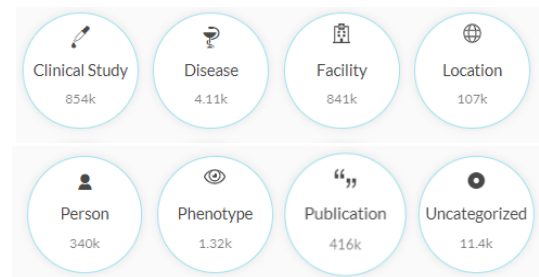
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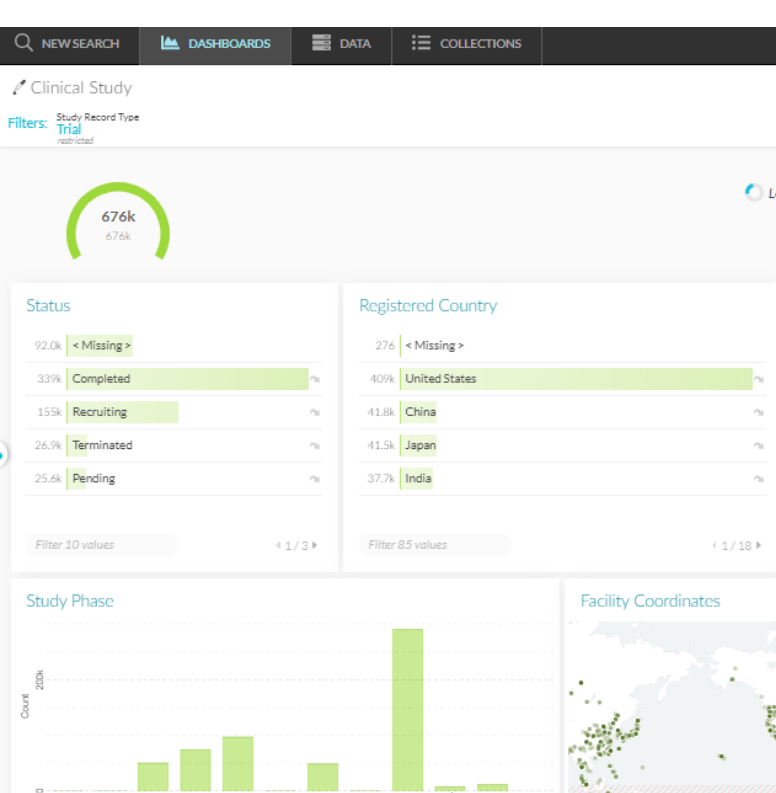
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Integration of Clinical Trial Information



Details Clinical Study

A Phase IV, Multi-Center, Controlled, Open-label Study to Evaluate the Safety, Tolerability and Immunogenicity of Chiron Meningococcal C Conjugate Vaccine Menjugate® when Given as First, Third or Fourth Immunization to Children 32 to 40 Months of Age

Data sources: ClinicalTrials.gov | EudraCT | ONTOFORCE | WHO: International Clinical Trials Registry Platform

Clinical Study 1 | Disease 1 | Organization 1

Synonym: A Phase IV, Multi-Center, Controlled, Open-label Study to Evaluate the Safety, Tolerability and Immunogenicity of Chiron Meningococcal C Conjugate Vaccine Menjugate® when Given as First, Third or Fourth Immunization to Children 32 to 40 Months of Age

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2004-005150-31 | EUCTR2004-005150-31 | EUCTR2004-005150-31-DE | M14P1E1

Trial: A Phase IV, Multi-Center, Controlled, Open-label Study to Evaluate the Safety, Tolerability and Immunogenicity of Chiron Meningococcal C Conjugate Vaccine Menjugate® when Given as First, Third or Fourth Immunization to Children 32 to 40 Months of Age

Status: Completed

External Link: <https://www.clinicaltrialsregister.eu/ctr-search/trial/2004-005150-31/DE/> | https://www.clinicaltrialsregister.eu/ctr-search/search?query=eudract_number:2004-005150-31

Bowel Prep Acceptance in Clinical Practice

Completed

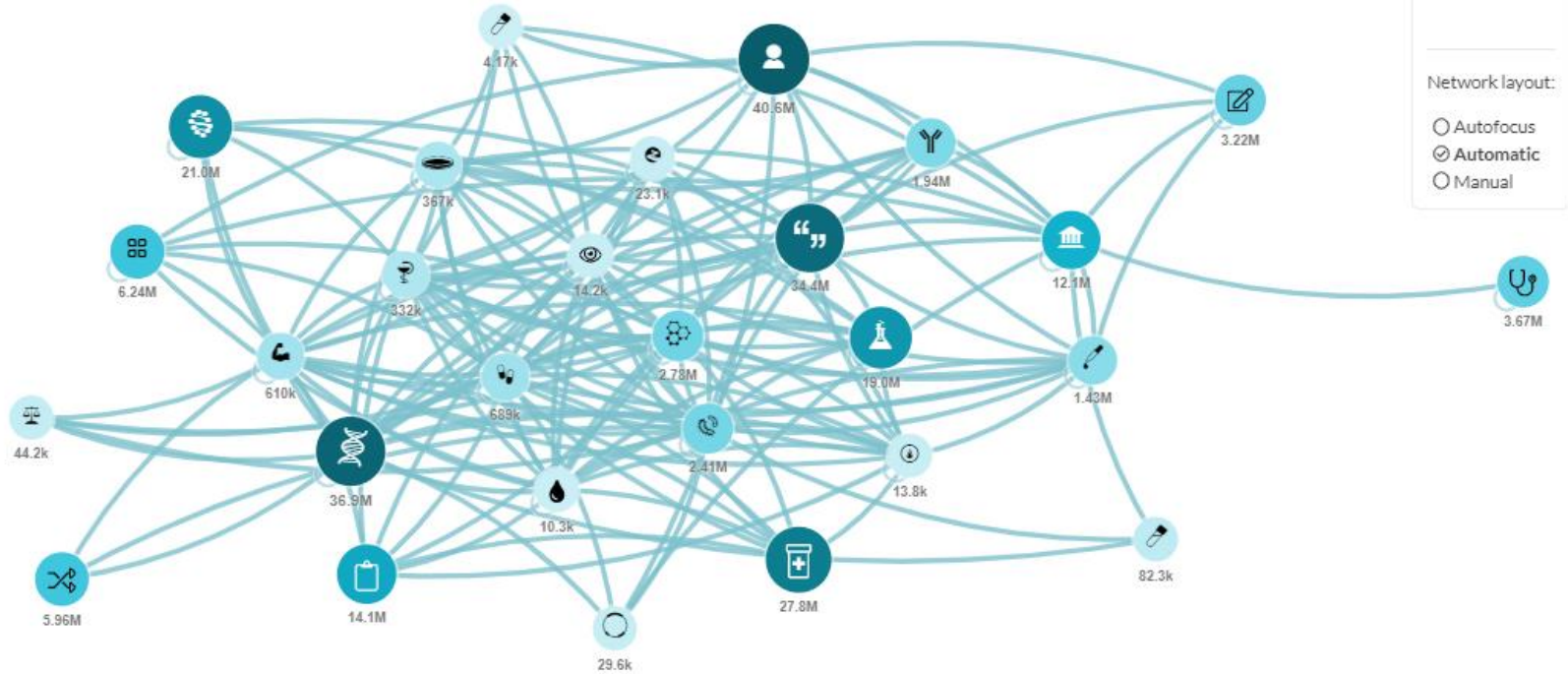
PubMed: WHO: International Clinical Trials Registry Platform; ONTOFORCE; ClinicalTrials.gov

Completion Date: 10/1/2014

Deprescribing anticholinergic and sedative medicines: A feasibility study in residential aged care facilities

WHO: International Clinical Trials Registry Platform; ONTOFORCE; PubMed

Next Step and next step..



Example of Knowledge Graphs applications



